16CH H.264
Network Video Recorder
User's Manual

IP surveillance

2012 OCT V1.1

Notice

WARNING

- Do not expose the DVR under the sunlight, heat or wet environment while installation. As it could decrease the performance of DVR and damage the machine.
- Do not touch the power plug or case with wet hands as this could result electric shock.
- Do not forcedly bend or put heavy object on power cable as this could result in injury to personal or equipment.
- Do not operate with *damaged power cord* or *loose* electrical *outlet* as this could result in electric shock or accident.
- Please use individual power instead of *share electrical outlets with other electrical equipment as this could result in damage or accident.*
- Do not attempt to service this DVR by yourself as it may expose you to dangerous voltage or other hazards. Please refer all service to the qualified servicing distributor.
- Please do not remove the machine housing during operation. It may cause electric shock or accidental injury.

CAUTION

- Do not place the machine on an uneven surface or it would decrease the DVR efficiency or malfunction.
- Avoid any shock or bumping of the DVR while recording. Improper handling could damage the system.

CAUTION

Make sure the voltage selector switch is set to appropriate setting before plug in!

Table of Contents

1. Specifications 1
2. Preparation 2
2.1 Front Panel 2
2.2 Installation 3
2.3 NVR Framework Diagram 5
2.4 IPCAM & NVR Connection Settings 6
2.5 Remote Controller 9
2.6 Mouse 10
2.7 Live View 11
3. Operations 13
3.1 Turn On the NVR 13
3.2 Main Menu 13
3.3 System Setup 14
3.4 Camera Setup 15
3.5 Alarm Setup 15
3.6 Record Operation 19
3.7 Playback 20
3.8 Backup 21
3.9 Audio Setup 22
3.10 PTZ Setup 22
3.11 User Setup 24
3.12 User Shift 25
3.13 Night View Setup 25
3.14 Turn Off the NVR 26
3.15 The Status of HDD 26
4. IE Connection 27
5. NVR Networking Example 29

1. Specifications

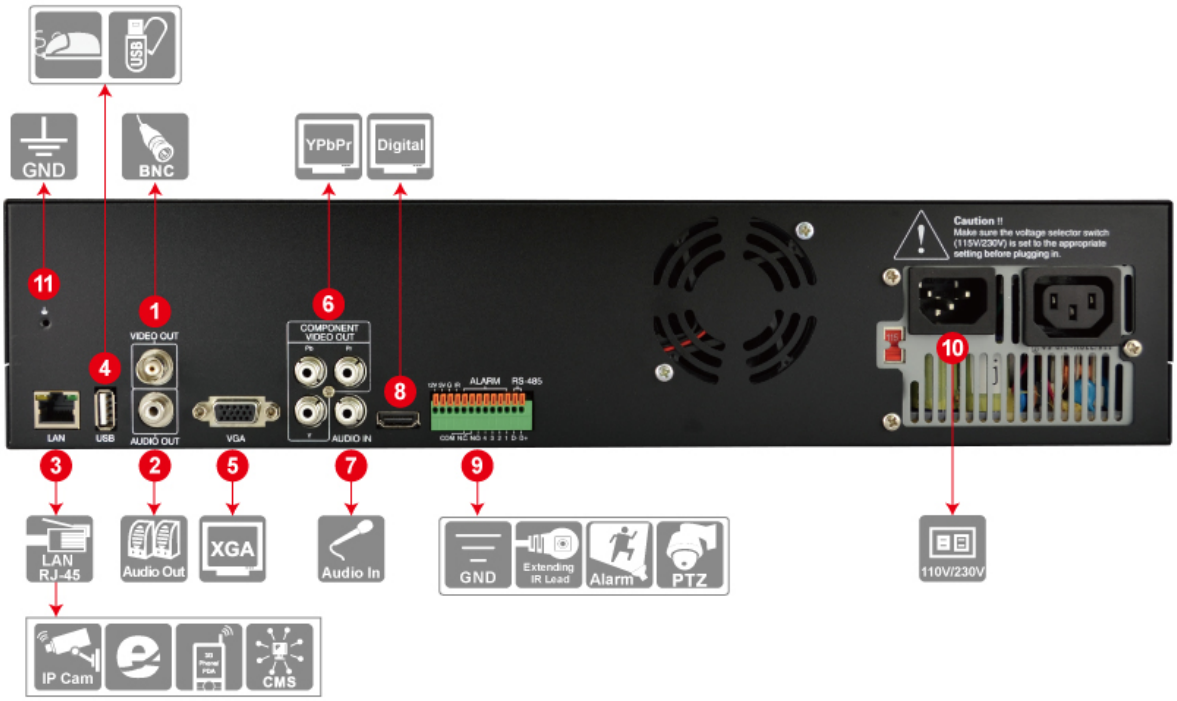
Type	16CH NVR (HD1080p)	16CH NVR (HD720p)
SOC	Hi3520	
Video Input	Support IP CAM x 16PCS	
Video Output	CVBS (BNC) / VGA / Digital Output	
Audio Input / Output	1ch Input / 1ch Output	
Display Resolution	1080P (1920x1080)	720P (1280x720)
Alarm Input / Output	4CH Alarm In / 1 CH Alarm Out	
Compression Algorithm	H.264	
Video Format	NTSC / PAL	
Display Resolution	VGA (800X600 / 1280X1024) Digital Output (1920 x 1080) YPbPr Output(1920 x 1080)	
Performances	200 / 240fps 1080P record,and 1CH 1080P playback	400 / 480fps 720P record,and 4CH 720P playback
Record Resolution	CIF/1080P	CIF/720P
Motion Detection	Video Motion	
Record Mode	Time/Sensor/Motion	
HDD	SATA 3.5”HDD (Max 2TB) x 4 pcs (No HDD Included)	
P/T/Z Control	RS-485	
Network Resolution	CIF / 1080P	CIF / 720P
Network Protocol	DHCP,DDNS,UPNP,SMTP,FAB	
Browser	Internet Explorer (Windows)	
CMS	WINDOWS / iMac	
3G Mobile OS	Windows Mobile, iPhone, Android, Symbian, Blackberry	
Control Mode	Remote Control / USB Mouse / Internet	
USB	USB x 2PCS	
Power	ATX 150W AC 115V~230V	
Dimensions	419mm (W) x 392.6mm (D) x97mm (H)	
Net Weight	4.5kg (HDD Not Included)	

2. Preparation

2.1 Front Panel

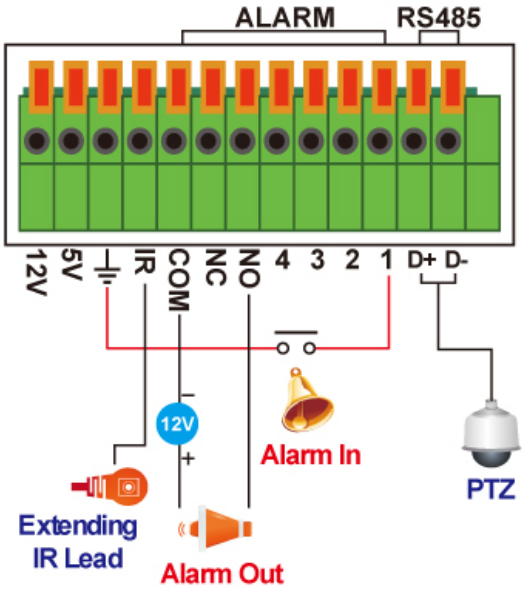
1. 0(+10)~9: Channel 1~16
2. POWER: Power on / Power off
3. MENU: Main Menu
4. ESC: Exit Menu
5. ■ / ▦ : 4 / 16 channel split screen display.
6. : Left / Fast Rewind
7. : Up / Channel add
8. : Down / Channel subtract
9. : Right / Fast Forward
10. ENTER: Confirm the setup
11. POWER: Power Indicator LED
12. HDD: HDD Indicator LED
13. LOCK: Keyboard Lock Indicator LED
14. ALARM: Alarm Indicator LED
15. IR: IR Indicator LED
16. IR Receiver
17. ●: Manual Record
18. ▶I: Play / Pause
19. ■: Stop
20. USB 2.0 Port: Connect to USB device to upgrade, backup; connect to USB mouse.

2.2 Installation



1. CVBS (BNC) Video Output
2. Audio Out
3. LAN Port
4. USB Port: Connect to USB device to upgrade, backup; connect to USB mouse.
5. XGA Output
6. YPbPr Output
7. Audio In
8. Digital Output
9. RS-485 / ALARM / IR Extending / GND
10. Power: ATX 150W AC 115V~230V
11. GND

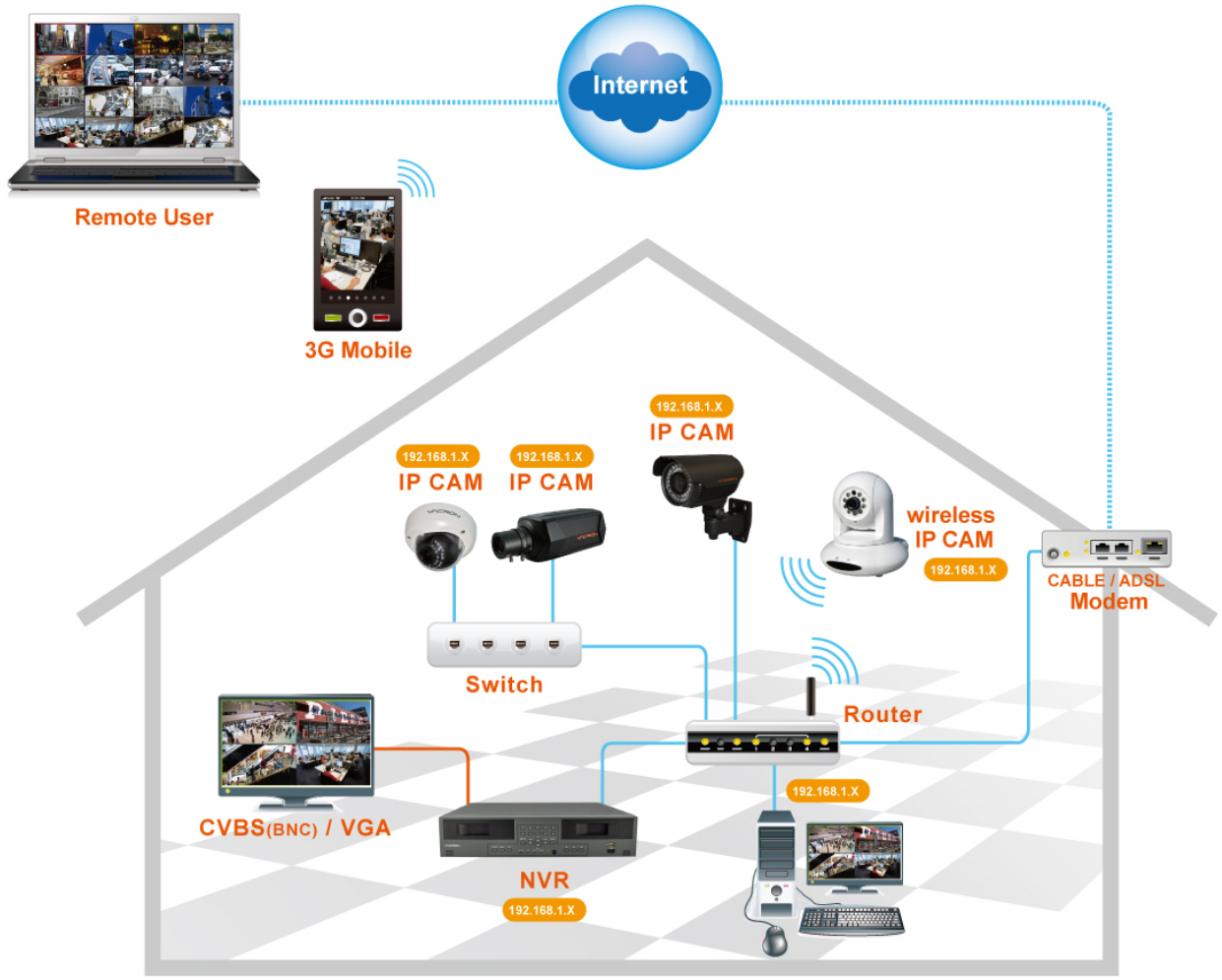
■ Alarm interface



4 channel alarm in
1 channel alarm output

The above picture shows a typical alarm in /out connection way. In order to make the NVR work well, it must connect to the ground as the above picture.

2.3 NVR Framework Diagram

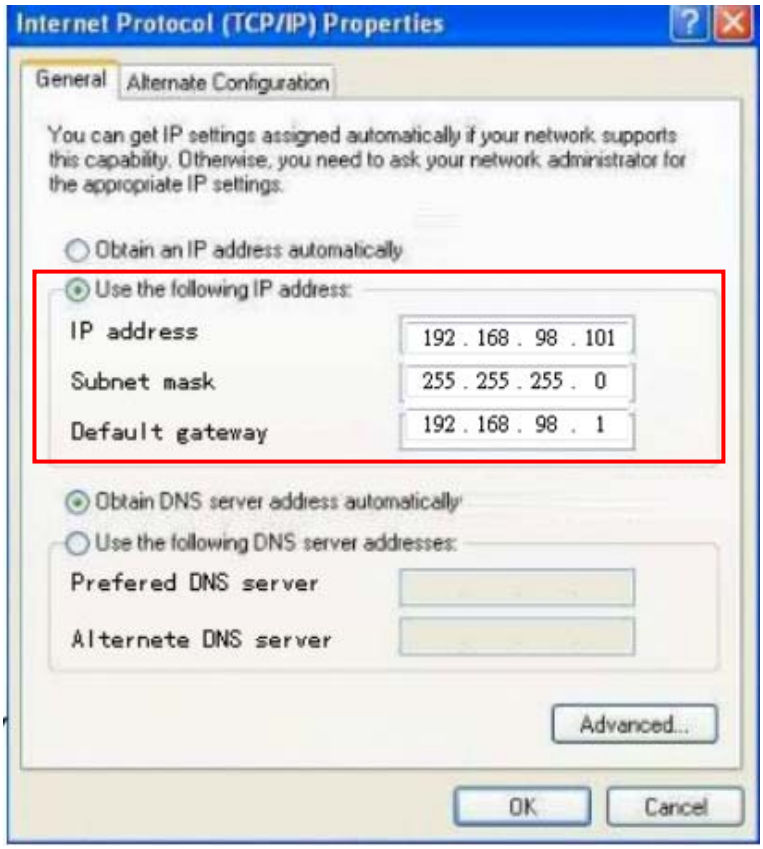


2.4 IPCAM & NVR Connection Settings

Step 1: IPCAM connected to PC via net cable

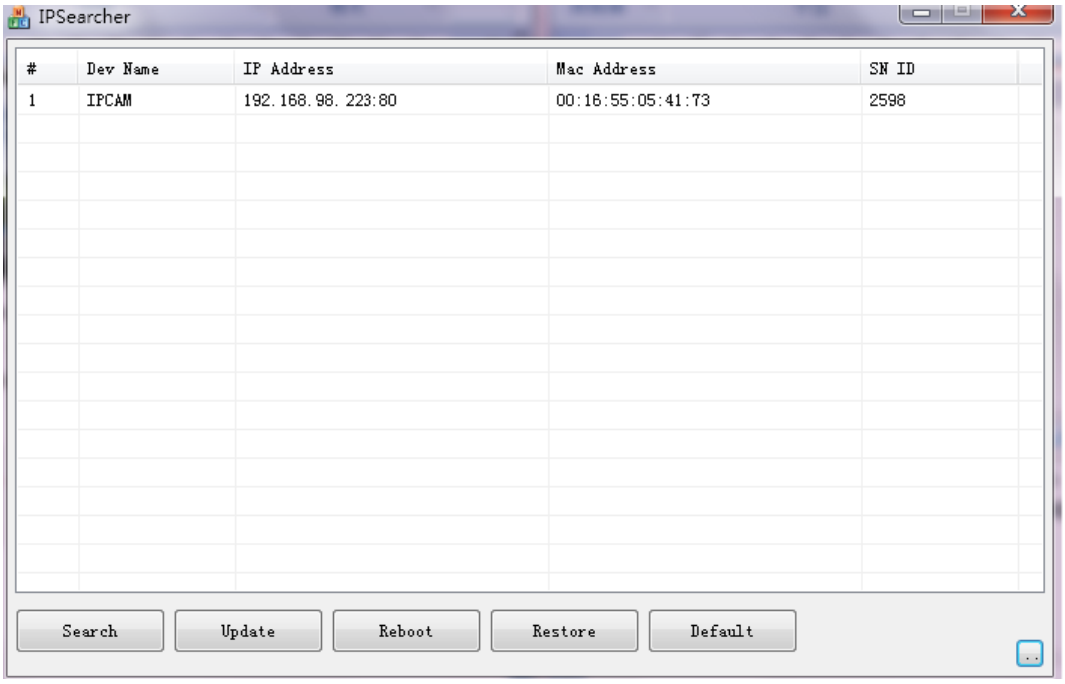
Step 2: PC set to a fixed IP

PC IP could be set as **192.168.98.101**, subnet mask 255.255.255.0, default gateway **192.168.98.1**


Internet Protocol (TCP/IP) Properties
General
Alternate Configuration
You can get IP settings assigned automatically if your network supports this capability. Otherwise, you need to ask your network administrator for the appropriate IP settings.
Obtain an IP address automatically
Use the following IP address:
IP address
192 . 168 . 98 . 101
Subnet mask
255 . 255 . 255 . 0
Default gateway
192 . 168 . 98 . 1
Obtain DNS server address automatically
Use the following DNS server addresses:
Prefered DNS server
Alternete DNS server
Advanced...
OK
Cancel

Step3: IpcamSearcher

1. Copy IpcamSearcher application in the CD to PC than execute.
2. Press Search botton than you can find the connected IP-CAM. Press Update to set the IP-CAM to the same LAN segment of PC.

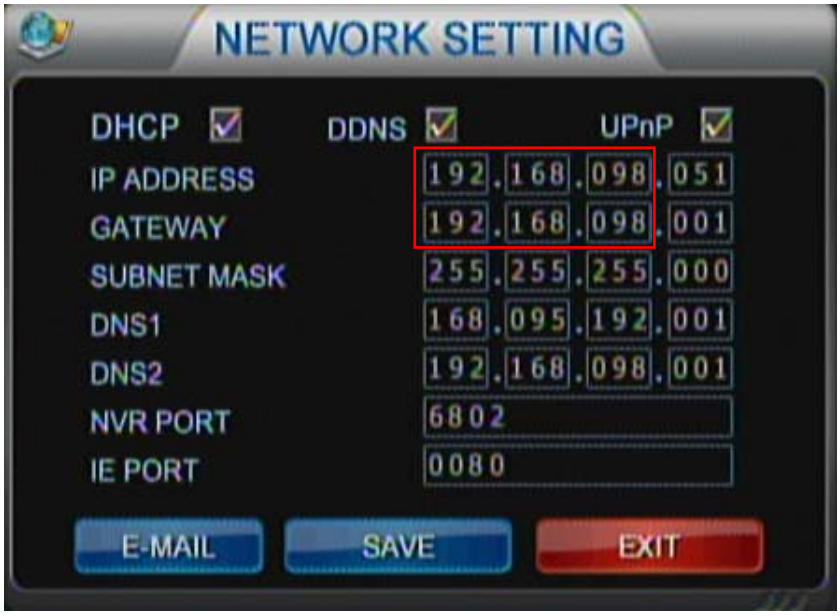


Step4: Set IP Address

The IP of IPCAM could be set in Camera setting menu in NVR.

Step5: Check the IP of NVR and IPCAM in the same network?

Log in Network setting menu of NVR via network remote client to check the IP of NVR and IPCAM in the same network segment.



When setting alarm information, the network segment of Router, IPCAM and NVR must be the same. NVR and IPsearcher software could not be connected to IPCAM at the same time.

2.5 Remote Controller

Inspection of remote controller	
	˅ **Check the battery's positive and negative polarity** ˅ **Check the battery's power** ˅ **Make sure the remote sensor is not obstructed.** ˅ **Check around and make sure there is no fluorescent lamp used.**

2.6 Mouse

Move the cursor to mouse icon will popup the prompt.

Operation	Function
Left click	■ Select or cancel " √ " . ■ Input password in login interface. ■ Select each function. ■ Full screen in live mode. ■ Switch channels. ■ Switch the items.
Right click	■ To popup the mouse icons. ■ Switch channels and items.
Move cursor	■ Move the cursor. ■ To pop up the mouse icons and prompt.
Drag the mouse	To select the mark area in camera settings. To select motion detection area in motion alarm. Digital zoom in live or play mode in single screen.
Mouse wheel	Switch the items in menu.

2.7 Live View

2.7.1 Live mode icons

Turn on the NVR to view the live image. It will show the date, time and camera name and record mode in the screen.

Note: It need to press record key to start schedule record.

Icon	Color	Description
M	Red M	Under motion recording
S	Red S	Under alarm recording.
L	Red L	Video loss during recording
T	Red T	Under timing recording.
I	Green I	Waiting for event to activate recording
L	Green L	Video loss during waiting recording
?	Yellow ?	Have video input but no recording
L	Yellow L	No video input and recording.

2.7.2 Mouse tools

- **Mouse tools in top-right of the screen**

  Press INFO key or right click the mouse to pop up the mouse tools.

  " "exit/ close the mouse tools.

- Switch the users, lock. Click it to log in via input password.
- Remote controller, No signal of remote controller.
- Control audio.
- Information, check the record mode, HDD mode and network mode; HDD is full, no HDD.

■ **Mouse tools in bottom of the screen**

Right click the mouse to popup the mouse tools. Press [ESC] key or click to exit. Take 4ch NVR as example.

Icons	Name	Description
	4 Split	Switch the 4 split screen.
	9 Split	Switch the 9 split screen.
	16 Split	Switch the 16 split screen.
	Record	Record
	Play	Click it to popup search menu.
	Stop	Stop play or record.
	Menu	Enter into menu.
	PTZ	PTZ control.
	SEQ	Switch the channels automatically/ sequence.
	Power	Click it to popup the power prompt.

3. Operations

3.1 Turn On the NVR

- Please check the voltage is fit for the NVR.
- Please check the connection with other device is right or not.
- Please insert the power line.
- The power light is red after the NVR is power on.

3.2 Main Menu

Right click the mouse to popup the mouse tools.

Click into menu.

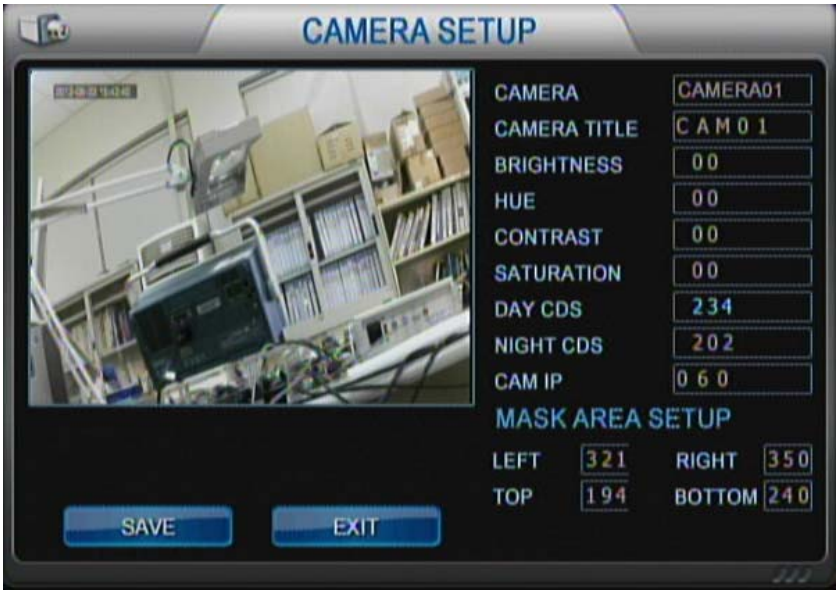
3.3 System Setup

- System time setup

  Select "SYSTEM" in main menu to enter into SYSTEM SETUP interface

- **Dividing line**: Set colors of the dividing lines: green, white, black and hide.
- **Frequency:** 50/60Hz, 50Hzfor PAL, 60Hz for NTCS.
- **Remote ID:** Activate the remote control operational when powering up the DVR.Deactivate the remote control when shutting down the DVR.The ID code of the remote control is from 01 to 99. To set the remote control ID, press the DVR key (remote control ID setting key) and ID code. The correspondent IR indicator on NVR panel will light up. The NVR is operational from the remote control. To reset the remote control, press the DVR key and ID code.
- **OSD Transparency:** SET menu transparency, 0: opaque, and 6: most transparent.
- **HD output:** VGA(800×600) ; VGA (1280×1024) ; HDMI (1920x1080)；YPbPr (1920x1080).
- **Mouse display:** To select CVBS (BNC) or HD monitor (VGA, Digital Output / YPbPr).
- **OSD Language:** Setting the language. Seven languages: 0:English, 1:Simplified Chinese, 2:Traditional Chinese, 3: Russian, 4: Italian, 5: Thai, 6: Romanian.

3.4 Camera Setup



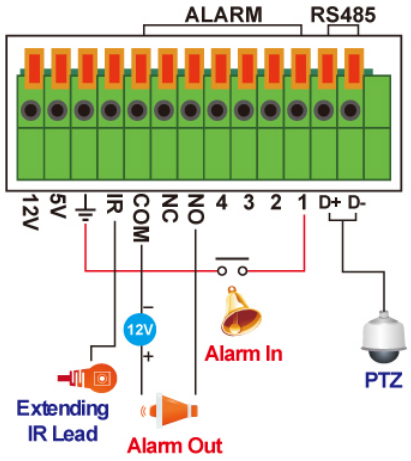
- Change the camera name
  Move the cursor to the letters, left/click the mouse to change the camera name.
- DAY CDS / NIGHT CDS functions only support Day&Night IP cam.

3.5 Alarm Setup

Example for alarm setup:
Channel 2
22:20 to 7:10next day.
It will alarm when the sensor feel somebody passed. The buzzer in the NVR will beep and send email.

Operation steps:

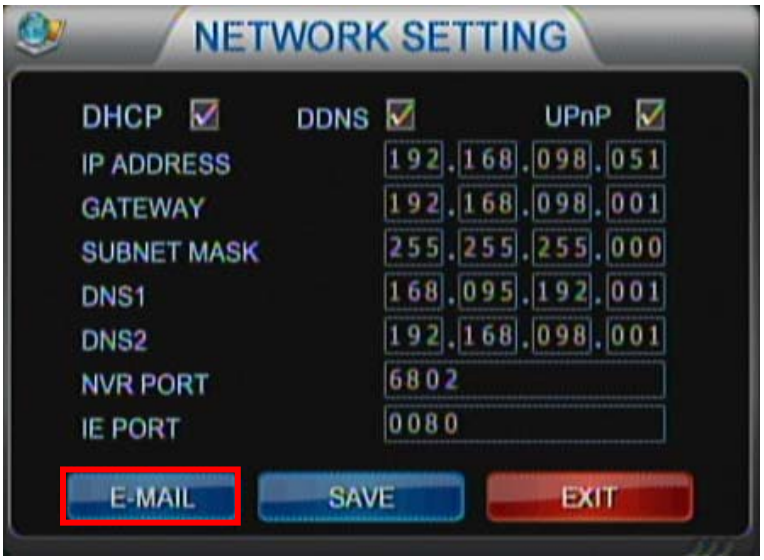
Step 1. Connection



***Note**, If connect the alarm for NVR, please connect the alarm in port of the IPCAN with the ground; or it will continue to alarm when schedule alarm happened. If connect the alarm for IPCAM, then please connect the alarm in port of the NVR to the ground.*

Step 2. E-mail setup

- Firstly confirm the network connection of the NVR is well.
- Then please follow the instruction: Menu→network setup-→email



- E-mail Setup

(1) Time interval: To set the time interval for sending email. It should be in denomination of minutes.

(2) Email server name: To set the email server for sending email.

(3) Email server port: To set the email server port. Generally the SMTP port is 25.

(4) User name: It's the email user name.

(5) User password: It's the email password.

(6) Password confirmation: To confirm your email password.

(7) Receiving address: It's the email address.

Operation way: moving mouse cursor to the each box and left click the mouse to edit.

You could click “TEST” for testing. Please make sure the NDS is right in network setup.

If the test email is failed, please check the setup of sending email in the web. It must open SMTP service for the email.

Step 3. Schedule setup

- Menu-->schedule setup

- **Camera:** select a channel or all channels.
- **Date:** set the date for recording. It could be set four time segment.
- **Time segment:** set the recording type. (time, motion, alarm, motion + alarm)

Step 4. Alarm setup

- Buzzer, relay, E-MAIL settings

  Alarm input for each channel (the image is lost, the image displacement, external alarm input). Respective set the alarm output (buzzer, relay, E-MAIL) whether the conditions to start.

It no needs alarm for motion, just set for sensor alarm; or the alarm will happened frequently.

Step 5. Set recording area and sensitivity for motion recording

Detection area

- **Sensitivity:** Select number 1-50 for motion sensitivity. Generally speaking, numerical value higher, the sensitivity better.
- **Detection area:** Select the motion detect area. Drag the mouse to select the area. When it detects there is movement in this area, the boarder color will turn red.

Step 6. Start recording

Press record button to start. If you didn't press the record button, there won't be alarm and record when motion happened

3.6 Record Operation

■ **Preparation for recording**

（1）Connect all relevant device and power on for them. Confirm that there are video in and audio in.

（2）Press INFO key to check the hard disk information. If the left capacity of the HDD is not enough, please change it or open the overwrite function in HDD management menu.

（3）Enter into schedule setup menu to set the relevant setup. Enter into record setup menu to set record parameters.

- **Resolution:**
  CIF: 352X240(NTSC) / 352X288(PAL)
  720P：1280X720
  1080P：1920X1080
  The system will restart after the resolution changed.

- **Quality (image):** To set the image quality at high, middle and low.
- **Frame rate:** To modify the frame rate per second. 25fps (PAL) or 30fps (NTSC)
- **Audio:** To set audio recording on and off.

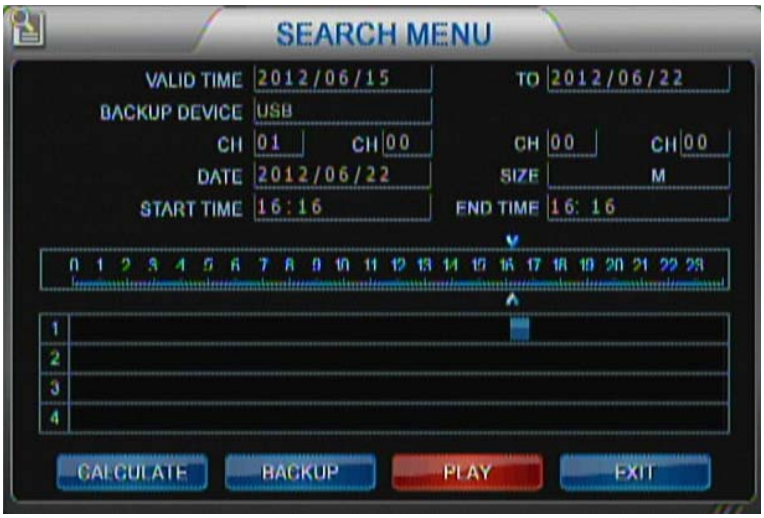
■ **Recording start and stop**

（1）Start recording: press key in front panel or use mouse to click the icon in mouse tool bar to start record. Once start recording or HDD begin to write, the HDD indicate light will turn on.

（2）Press ■ key in front panel or use mouse to click the icon or press [ESC] key to stop record.

3.7 Playback

Click icon to enter recording search interface. You could search the recording file and backup the file into another device. Also you could search for a video file to playback.



You could see the play status prompt in the bottom of the screen

: normal play

: pause

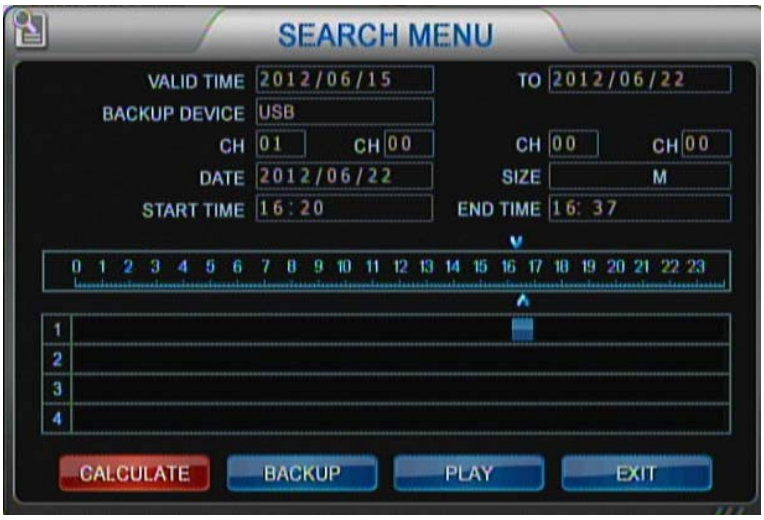
: stop

×2 / ×4 / ×8 / ×16 / ×32 / ×64 The speed of fast forward.

×2 / ×4 / ×8 / ×16 / ×32 / ×64 The speed of fast rewind.

Operation way: in play mode, press [▶▶] / [◀◀] key once/twice/three times…..six times to play faster and faster. Then press [▶▶] / [◀◀] again to play normally. Press [▶|] and [▶▶] / [◀◀] to play forward or rewind one frame.

3.8 Backup



- **Select backup device**

  USB / CD(500M) / DVD 1.5G / MINI CD(180M)

- **USB backup**

  Less than 30G. If the usb disk could not be read, please format it firstly.

  USB format way:

  Insert the usb disk into US port of NVR.

  "menu"→"HDD management"

Select the disk name: disk A. Then click "format".

- **Select backup channels** (4 channels max)
- **Select backup time**: select the begin time and end time.
- **Calculate:** To calculate the video file's capacity which you want to backup. Before your backup, please try to proceed this operation.

Not support mobile HDD backup.

3.9 Audio Setup

Press [AUDIO] key in front panel or in the remote controller or click“ ”to enter into audio setup menu.

- **“monitor”: Mute, client, CH1-CH4 optional.**
- **Broadcast:** NVR transfer the live audio to client or cameras via pickup device. If client/ some channel is selected, the audio will be transfer to the client/ some channel. is selected

3.10 PTZ Setup

- Set the parameters in PTZ setup menu firstly.

(1) Camera: Select the channel connected.
(2) Baudrate: Select the baud rate of the speed.
(3) Device ID: Set the ID for the speed dome
(4) Protocol: Select the communication

■ After speed dome setup, please enter PTZ setup. Press the [PTZ] key or click to enter it.

(1) Then it will display "PTZ: CAM01 SPEED: 16 DATA:00" in the screen. It means DVR is under PTZ status now. Press [PTZ] or [ESC] again to exit PTZ interface.

(2) When DVR is under PTZ status, it will display the mouse tool bar as below:

Icons	Name	Description
	Direction key	To move speed dome up, down, right and left.
	Rotate	To make speed dome rotate automatically. Press it again to stop rotating.
	Zoom	Zoom in and zoom out
	Preview	To check the preset data already saved.
	Set	To make preset setup.
	Close	Shut off PTZ and exit PTZ interface.

(3) **Modify parameters**

You could use mouse or remote control to modify the preset data. Select the item which you want to modify by press [SPOT] key on remote control or click the item directly by mouse. Then modify the data by left/right click by mouse.

(4) **Preset setup**

- Select image point in selected camera by keys. Set a number for the image in “DATA”, such as 01, then click to finish the setup.
- To view of image point which has been saved, you could select the corresponding number in“DATA”, then click to view.

3.11 User Setup

Before enter USER SETUP interface, you should enter USER LOGIN interface and type the correct password first

■ User Setup

- **User name:** To select administrator and users. There are 4 user name , ADMIN0, USER01, USER02 and USER03. ADMIN0 is default one.
- **Password:** To set user's password. The default password is 000000 for ADMIN0, 111111 for USER01, 222222 for USER02 and 333333 for USER03. And password is changeable by users.
- **Authority setup:** As administrator, you could enter USER SETUP to grant normal user authority to make setup.

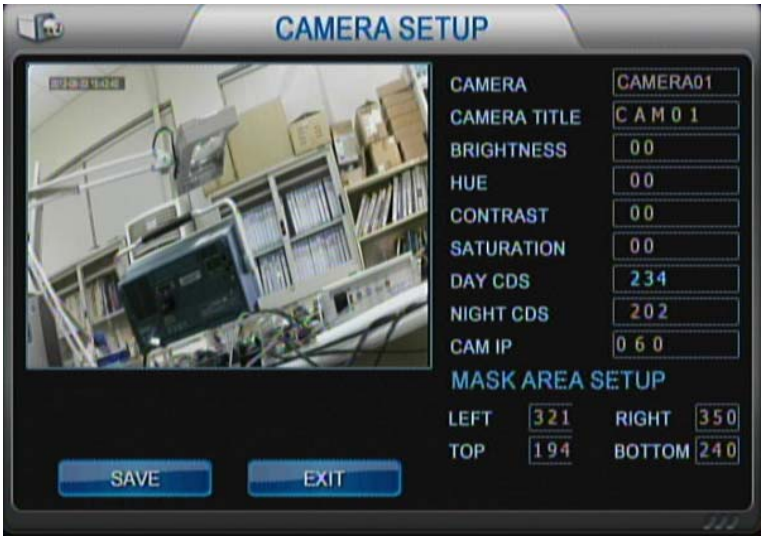
Unlock setup: If the DVR was locked, please click the on right top of screen. Then it wills popup the interface of USER LOGIN. Type the user name and password to unlock the DVR. Then the icon will turn to blue .

3.12 User Shift

Please enter USER LOGIN interface to shift the user and type correspond password.

3.13 Night View Setup

Enter into camera setup:



- **Day light perception:** Images switch to day mode when the light intensity is greater than the value, the image is color. Default one is 234.
- **Night light perception:** Images switch to night mode when the light intensity is smaller than the value, the image is white and black. Default one is 202.
- DAY CDS / NIGHT CDS only support IR-CUT IP cam

3.14 Turn Off the NVR

- Soft turn off: exit from all operations and back to live mode. Press key in front panel or remote controller or click the mouse icon to popup turn off prompt, select OK to turn off the NVR, press key three seconds to restart the NVR.
- Hard turn off: Pull the power line directly.
- Abnormal crash: If the NVR restart five times failed in one hour, it will keep crash, the buzzer will beep. Please cut off the power and power on again.

3.15 The Status of HDD

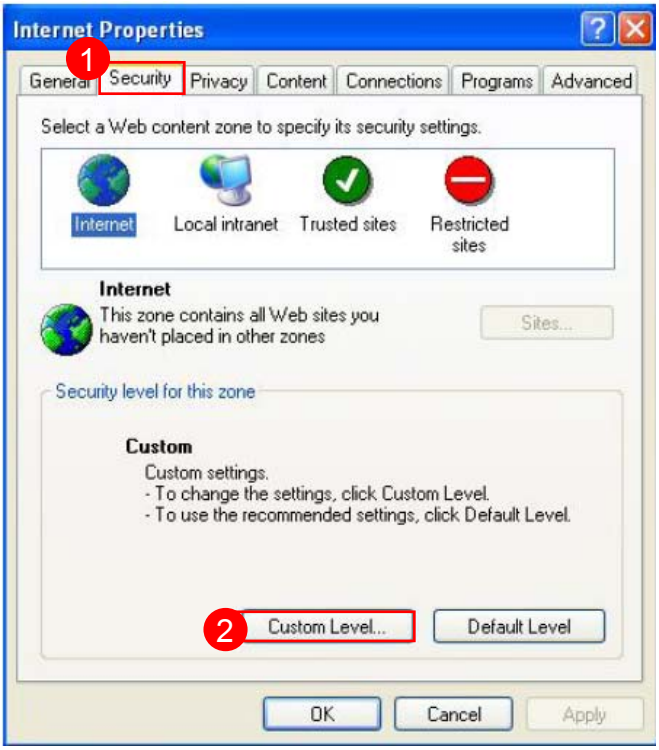
Press INFO key in live mode, you could see the following icons

- : The system information and HDD is full.
- : No HDD

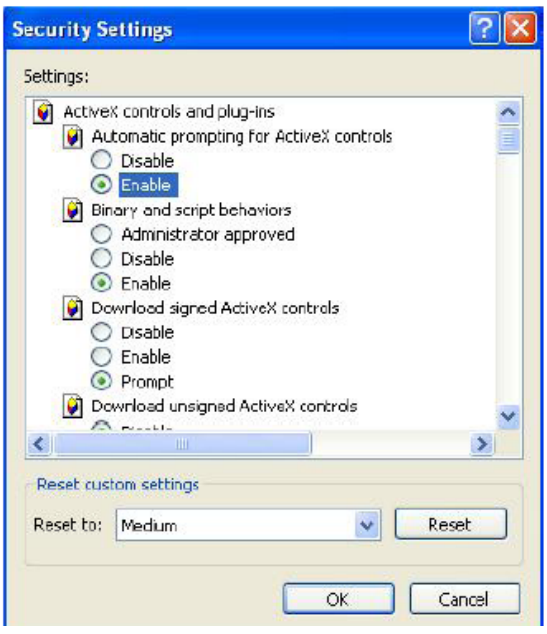
4. IE Connection

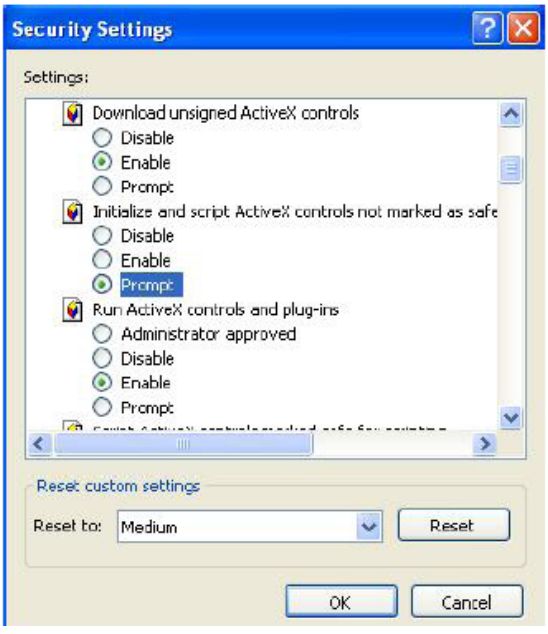
Operation steps:

Step 1: click security, Right-click the icon “ ” , then click “properties” → “security” in the following dialog box.



Step 2, check all items in ActiveX, set them as “enable” or “prompt”





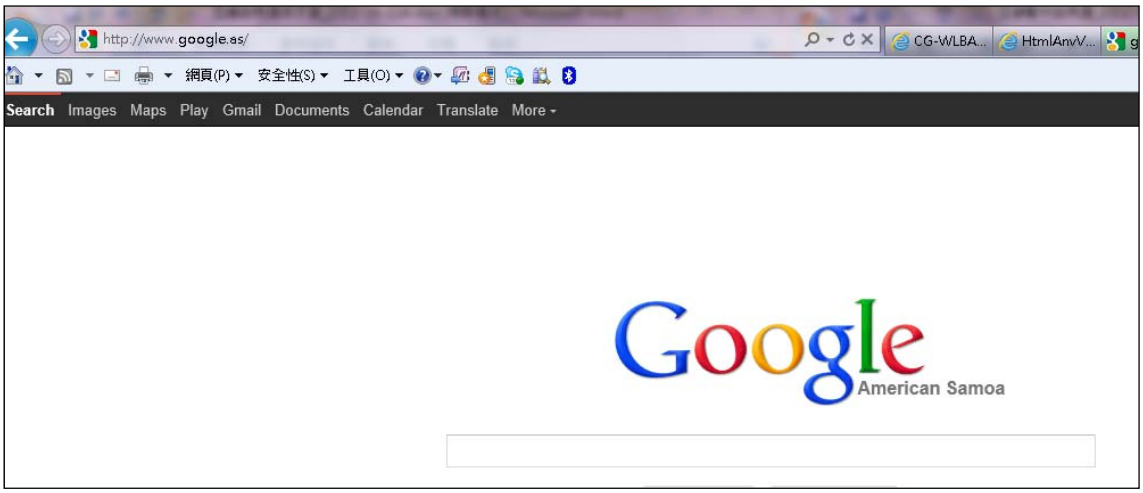
Step 3, IE ActiveX download address: http:// nvr.cctvdvr.com.tw:82/, or download it from the NVR IP, e.g.: http://192.168.98.51:80/, 82 is the IE port set in Network menu. it need to do port forwarding in the router when download IE ActiveX controls from WAN.

Step 4, it will popup login interface after the IE ActiveX controls was download. There are four login way.

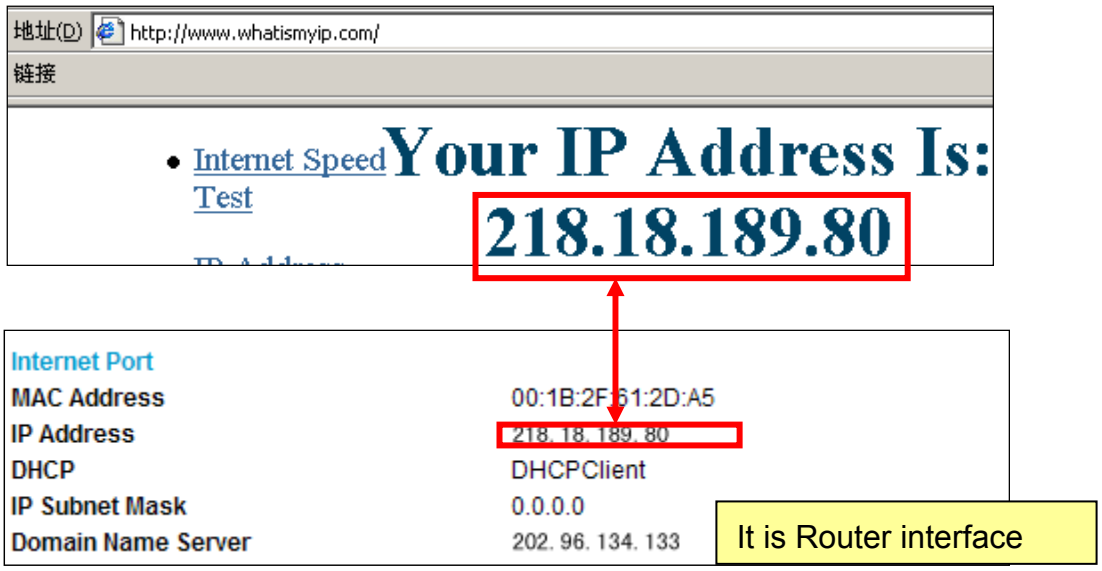
a) NVR LAN IP with DVR port, e.g.: 192.168.98.51:6802.
   WAN connection:
   Firstly confirm the WAN IP in the router is the real and useful IP. It must to do port forwarding for the NVR port in the router. Then check the setting is successful or not in http://www.yougetsignal.com/tools/open-ports .
b) Router domain name with DVR port. E.g.: avdf.dyndns.com:6802. It need to apply for a domain name in the web and fill in the domain name in the router.
c) Router WAN IP with DVR port. E.g.: 20.30.40.50:6802. If the IP is fixed, this way could be used.
d) Free supply domain name with NVR number.
   E.g. nvr.cctvdvr.com.tw:72K2382. Please select DDNS in network setup menu of NVR. Then you could check the DDNS information in INFO menu. Please check the DNS setting. If there is “@” following the NVR number, the NVR connect to the server successfully.

5. NVR Networking Example

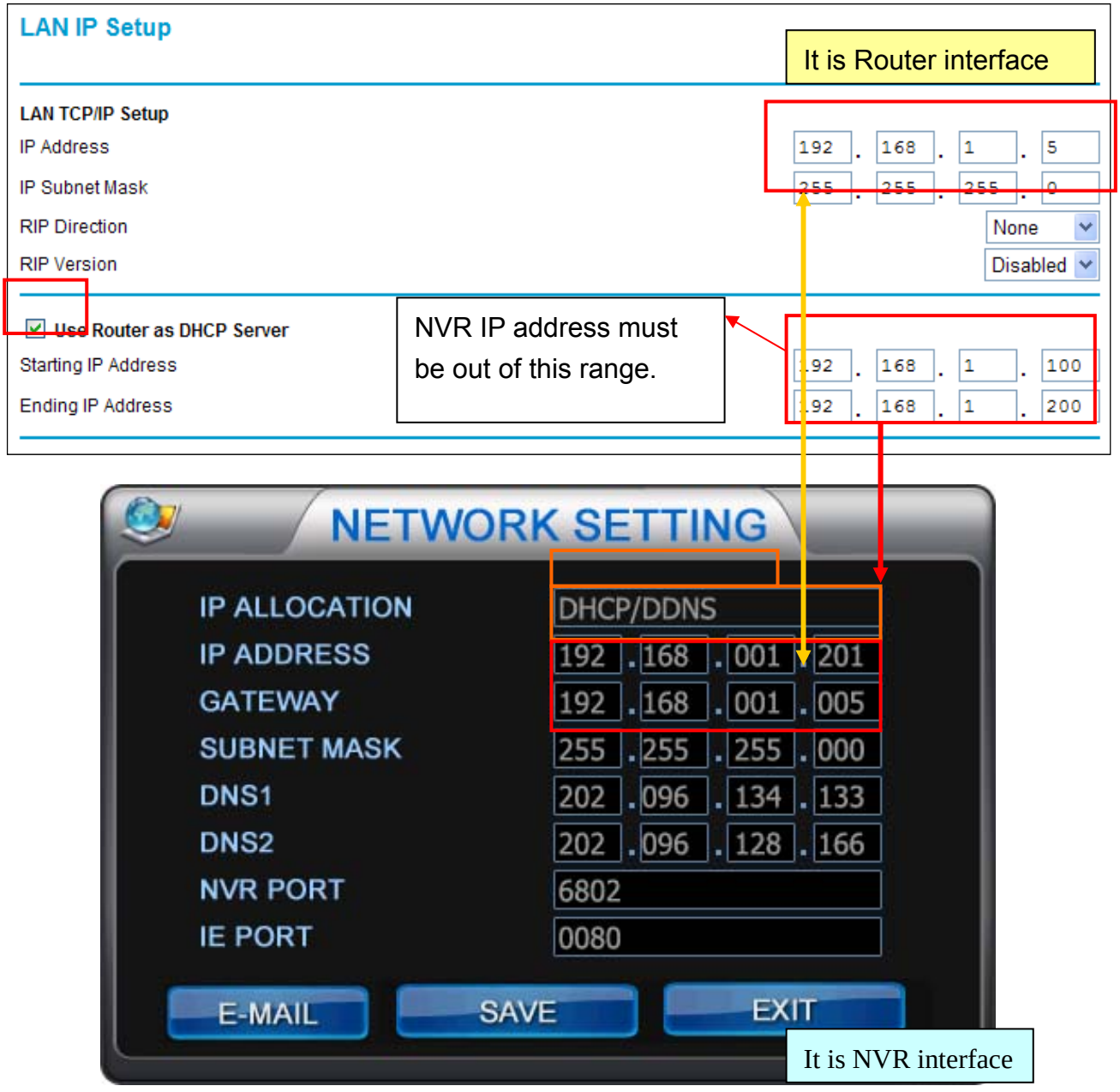
1. Connect the NVR net cable with the PC. Type in http://www.google.com in IE address bar. Check the WAN connection is well or not. Then you could see the page.



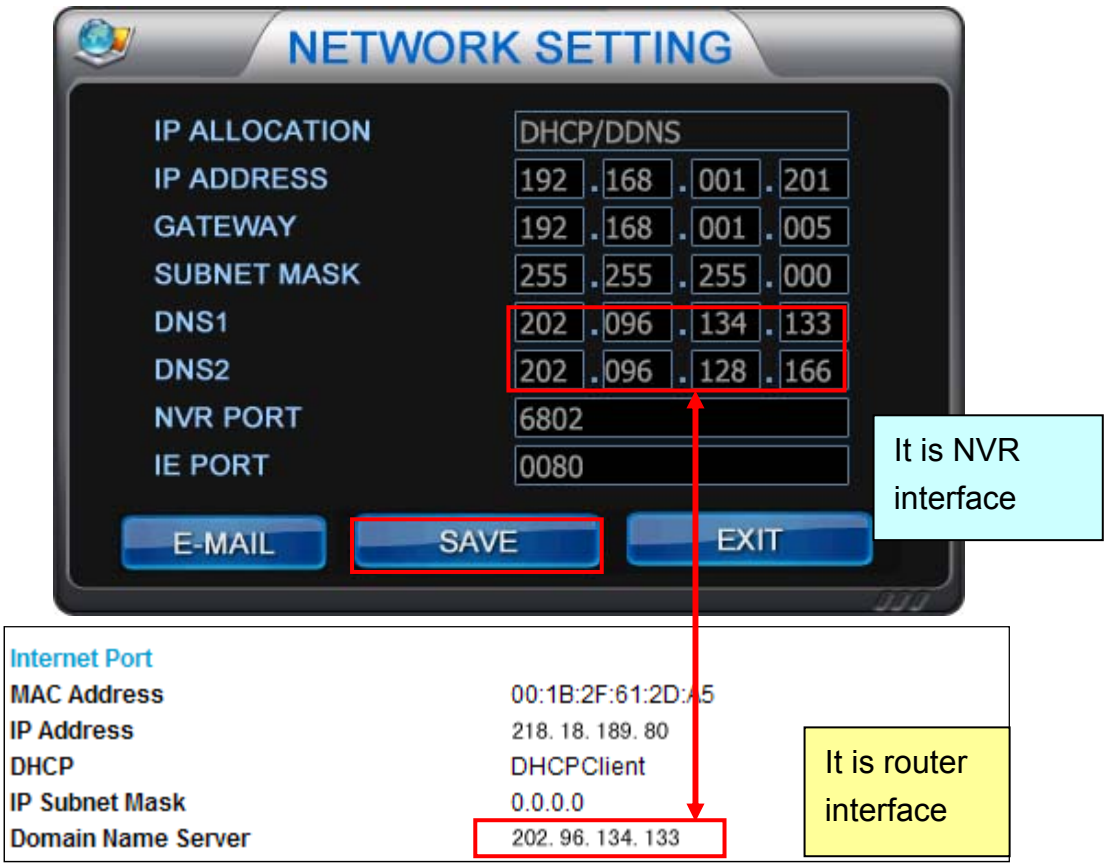
2. Confirm the router IP is the real and useful IP. Type in http://www.whatismyip.com in the IE address bar. The IP shows here must be the same as the router IP. If no, it is not the real IP.



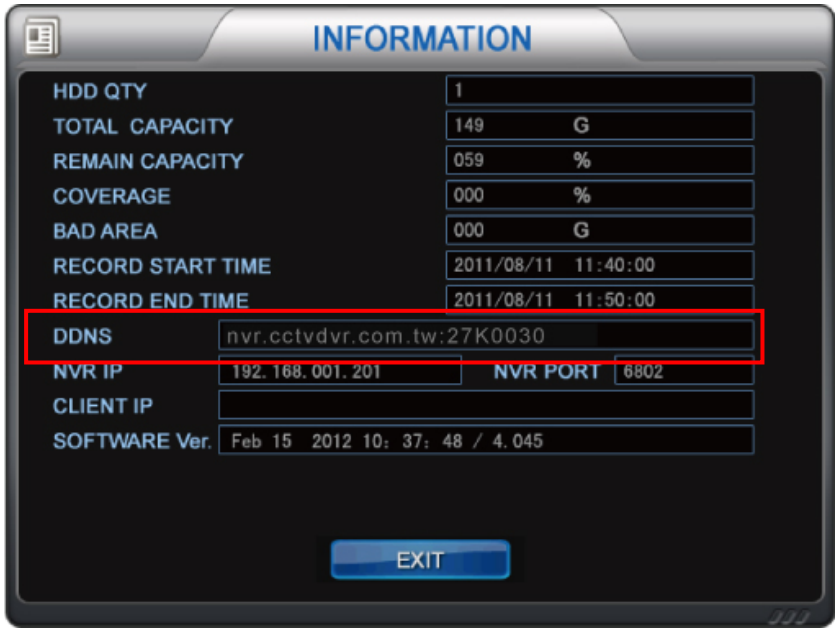
3. Set the IP item as “DHCP/DDNS” in network setup menu in NVR. If the DHCP in the router is open, the NVR will get the IP from the router automatically. Please change the IP, it should out of the range of DHCP.



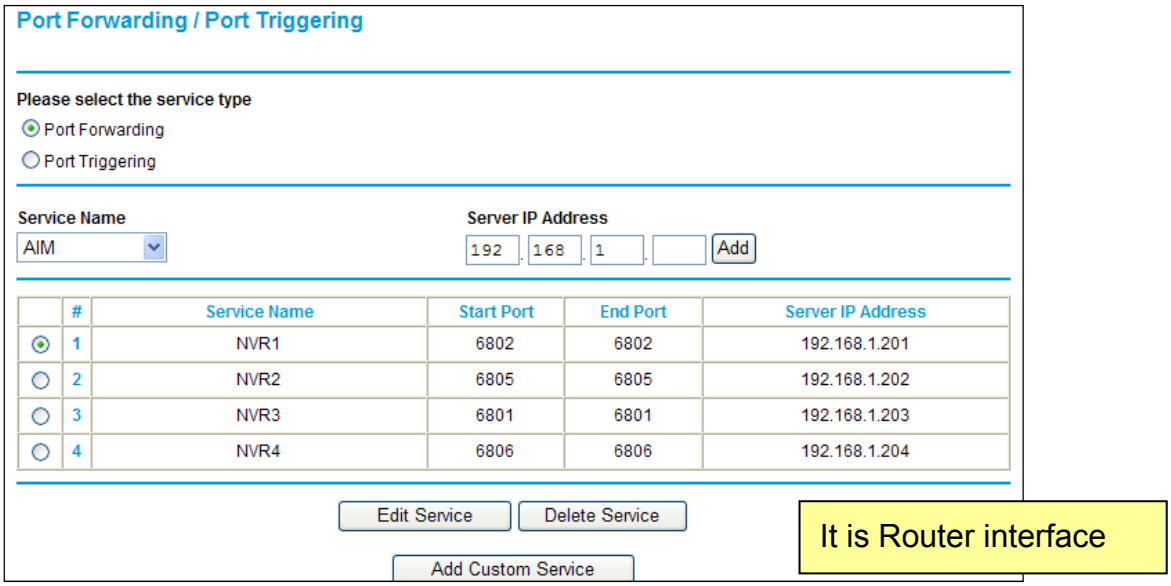
Check DNS IP, it should be the same one in the router.



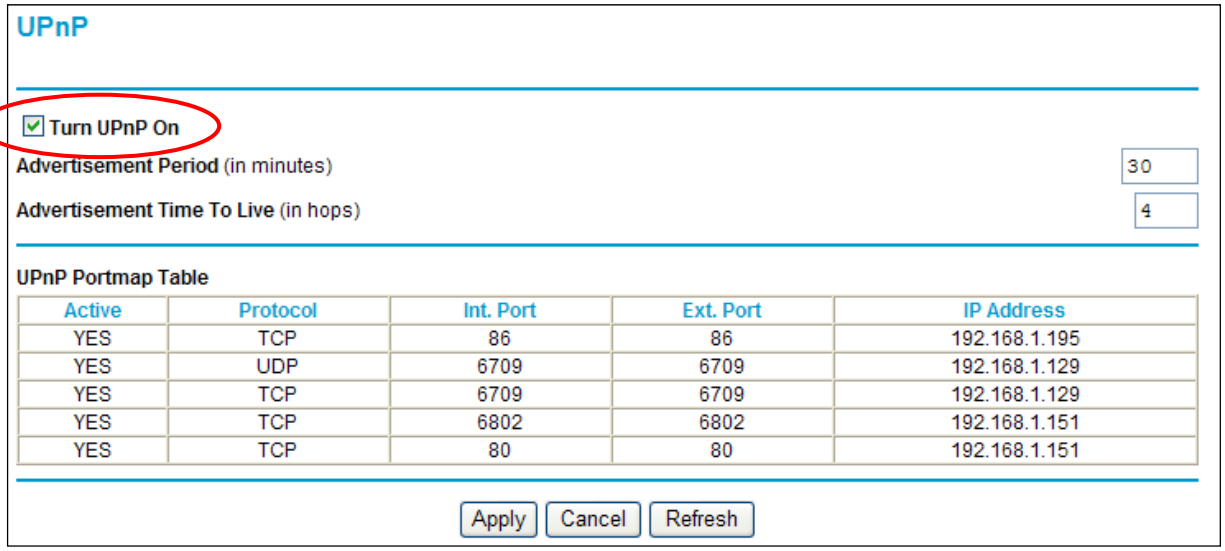
4. Open INFO menu in NVR. It will show nvr.cctvdvr.com.tw:27K0030@ in DDNS item. If no @, the connection between NVR and server is failed. Please exit and enter into the INFO menu again after one minute. If there is no @ again, please check the DNS setting of NVR is right or not.



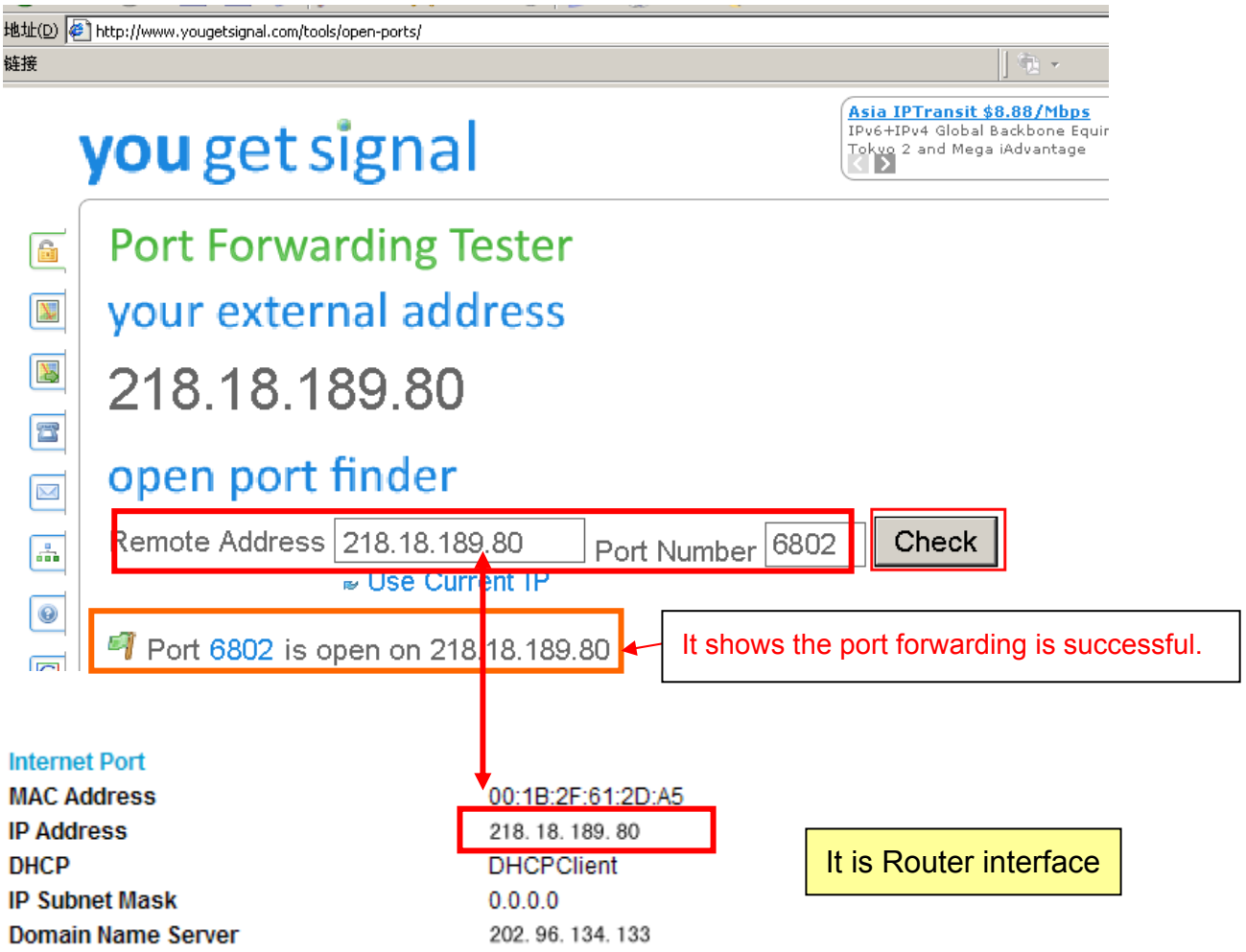
5. Set port forwarding in router. Set different port for different NVR and port forwarding separately.



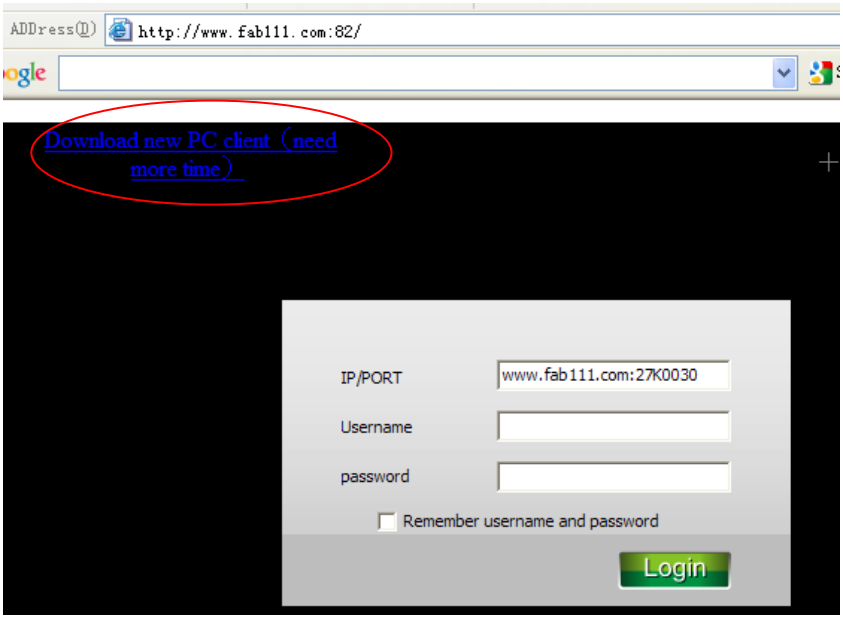
Open UPnP function in the router to fulfill the port forwarding of NVR automatically. It is suggested to change the port in network setup menu after UPnP is open. And set auto port forwarding at once after save the port. Click the refresh icon to see the latest IP and port.



You could check the port forwarding successful or not in http://www.yougetsignal.com/tools/open-ports.

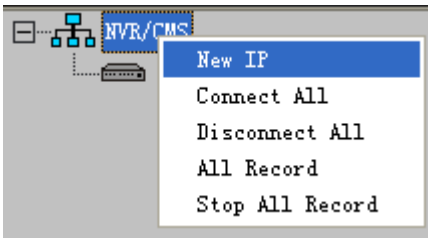


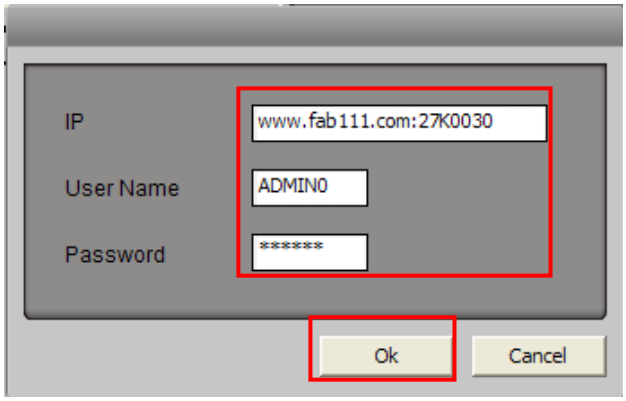
6. Download the latest CMS software in http://www.fab111.com:82/.



7. Open the MS client software, type in the domain name, NVR number, user name and password to test the connection. If the connection is failed, please check with LAN IP.
   Open the client software, right click NVR/CMS, select new IP, add it and connect it.

This is client software interface.





The setting of router may not support WAN IP connection in local network, then the connection via domain name and NVR number will also fail.